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IS 4181 (1967): Feed Fork for Sewing Machines for Household Purposes [MED 29: Sewing Machines]



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Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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IS : 4181 - 1967

REAFFIRMED

2006

Indian Standard

SPECIFICATION FOR
FEED FORK FOR SEWING MACHINES FOR
HOUSEHOLD PURPOSES

UDC 687-053-42



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INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 1

September 1967

Revised Price

5-00

AMENDMENT NO. 1 APRIL 1981

TO

IS : 4181-1967 SPECIFICATION FOR FEED FORK FOR SEWING MACHINES FOR HOUSEHOLD PURPOSES

Alterations

(*Page 3, clause 0.2*) — Delete and renumber the subsequent clauses accordingly.

(*Page 3, clause 1.1*) — Substitute the following for the existing clause:

‘ **1.1** This standard specifies the requirements for two types of feed forks for sewing machines for household purposes. ’

(*Page 4, clause 4.1*) — Substitute the following for the existing clause:

‘ **4.1** The sliding faces and the small end of feed forks forged from steel shall be hardened to a minimum depth of 0.4 and 0.2 mm respectively so as to attain a minimum hardness value 550 HV5 (*see IS : 1501-1959§*). ’

(*Page 4, clause 5.1, lines 1 and 2*) — Substitute ‘ Tables 1 and 2 ’ for ‘ Tables 1, 2 and 3 ’.

(*Page 5, clause 6.5, line 1*) — Substitute ‘ 0.007 mm ’ for ‘ 0.005 mm ’.

(*Page 6, Table 2*) — Delete and renumber the subsequent tables accordingly.

[*Page 7, Table 3 (renumbered as Table 2), values under col ‘A’*] — Substitute the following for the existing values:

A

22.492

22.479

(*Page 7, clause 8.1, line 2*) — Substitute ‘ trade-mark, if required ’ for ‘ trade-mark ’.

(*Page 8, clause 9.1*) — Substitute the following for the existing clause:

‘ 9.1 Feed-forks shall be given any suitable anti-rust coating or wrapped in vapour phase inhibitor paper (commonly known as VPI paper). The wrapped feed forks shall be securely packed in accordance with the best prevalent trade practice. Each package shall bear the manufacturer’s name or trade-mark, type and description of the contents.’

(*Page 8, clause 9.1.1, line 1*) — Substitute ‘ packages ’ for ‘ cartons ’.

Addenda

(*Page 4, clause 3.1*) — Add the following new matter at the end of the clause:

‘ or steel conforming to IS : 226-1975¶ ’.

(*Page 4, foot-note with ‘§’ mark*) — Add the following new foot-note after ‘§’ mark:

‘ ¶Specification for structural steel standard quality (*fifth revision*). ’

(EDC 34)

Indian Standard

SPECIFICATION FOR FEED FORK FOR SEWING MACHINES FOR HOUSEHOLD PURPOSES

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(Continued on page 2)

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IS : 4181 - 1967

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Indian Standard

SPECIFICATION FOR FEED FORK FOR SEWING MACHINES FOR HOUSEHOLD PURPOSES

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 29 June 1967, after the draft finalized by the Sewing Machines Sectional Committee had been approved by the Mechanical Engineering Division Council.

0.2 This standard deals with three types of feed forks for sewing machines for household purposes. The feed forks, Type A1 and Type B are used for sewing machines having double feed arrangement whereas feed forks, Type A2 are employed for single feed sewing machines.

0.3 While preparing this standard assistance has been derived from JIS B 9033-1960 'Feed forked connection of sewing machine for home use', issued by the Japanese Industrial Standards Committee.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS: 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard specifies the requirements for three types of feed forks for sewing machines for household purposes.

1.1.1 This standard does not deal with feed forks for sewing machines for industrial and special purposes.

2. NOMENCLATURE

2.1 For the purpose of this standard, the nomenclature as given in Fig. 1 shall apply.

*Rules for rounding off numerical values (*revised*).

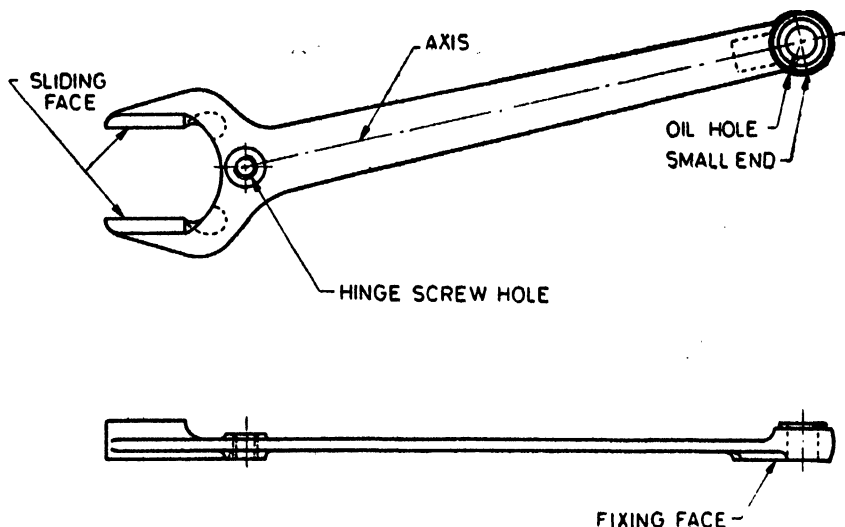


FIG. 1 NOMENCLATURE FOR FEED FORKS

3. MATERIAL

3.1 The feed forks shall be manufactured from any suitable grey iron casting, such as Grade 15 of IS : 210-1962* or from any suitable blackheart malleable iron casting, such as Grade B of IS : 2108-1962† or forged from any suitable steel, such as C20 or C40 of Schedule II of IS : 1570-1961‡.

4. HARDNESS

4.1 The sliding faces and the small end of feed forks forged from steel shall be hardened to a minimum depth of 0.4 mm and 0.2 mm respectively so as to attain a hardness value within the range of 600 to 700 HV (see IS : 1501-1959§).

5. DIMENSIONS

5.1 The main dimensions for feed forks shall be as given in Tables 1, 2 and 3.

*Specification for grey iron castings (*revised*).

†Specification for blackheart malleable iron castings.

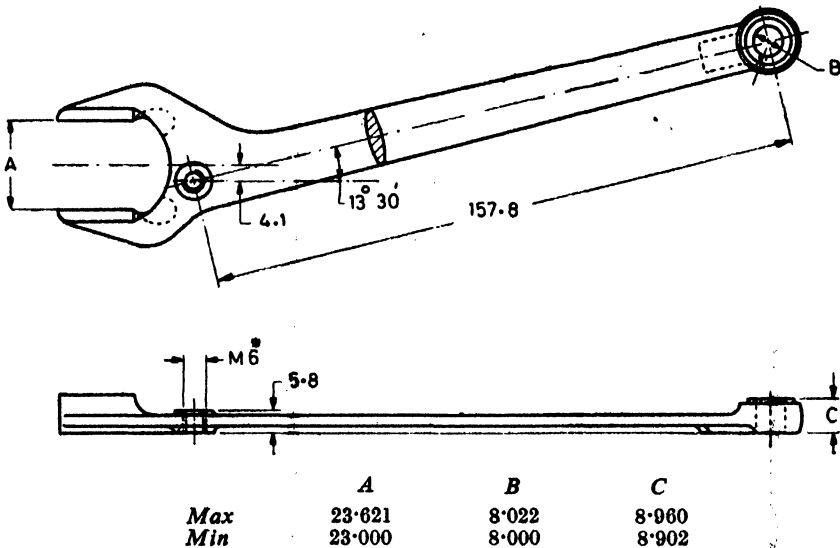
‡Schedules for wrought steels for general engineering purposes.

§Method for Vickers hardness test for steel.

TABLE 1 DIMENSIONS FOR FEED FORKS, TYPE A1

(Clause 5.1)

All dimensions in millimetres.



*15/64" × 28TPI (sewing machine) threads may also be used till the complete change-over to metric system is effective.

6. TOLERANCES

6.1 The error in squareness of the sliding faces with respect to the fixing face shall not exceed 0.3 mm per 100 mm.

6.2 The error in parallelism of the sliding faces with respect to the centre line of hinge screw hole shall not exceed 0.3 mm per 100 mm.

6.3 The error in parallelism of the sliding faces shall not exceed 0.2 mm per 100 mm.

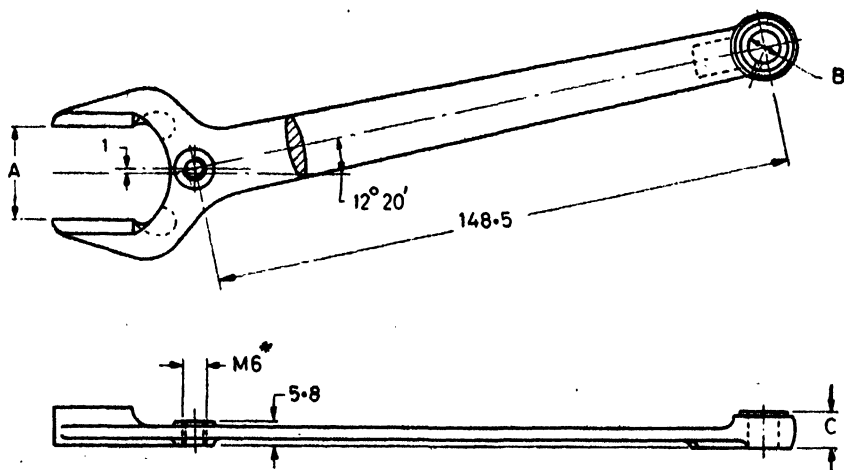
6.4 The axes of small end hole and hinge screw hole shall be square with respect to the sliding faces within 0.2 mm per 100 mm.

6.5 The error in parallelism of the sliding faces shall be within 0.005 mm over the width of the fork.

TABLE 2 DIMENSIONS FOR FEED FORKS, TYPE A2

(Clause 5.1)

All dimensions in millimetres.



	<i>A</i>	<i>B</i>	<i>C</i>
<i>Max</i>	23.621	8.022	8.860
<i>Min</i>	23.000	8.000	8.902

*15/64" × 28TPI (sewing machine) threads may also be used till the complete change-over to metric system is effective.

6.6 Tolerances on untoleranced dimensions shall conform to fine grade of IS : 2102-1962*.

7. WORKMANSHIP AND FINISH

7.1 The sliding faces of feed forks shall be precision ground to attain a minimum surface finish value of Ra 0.4 μm.

7.2 The small end hole of the feed fork shall be precision ground without any line mark.

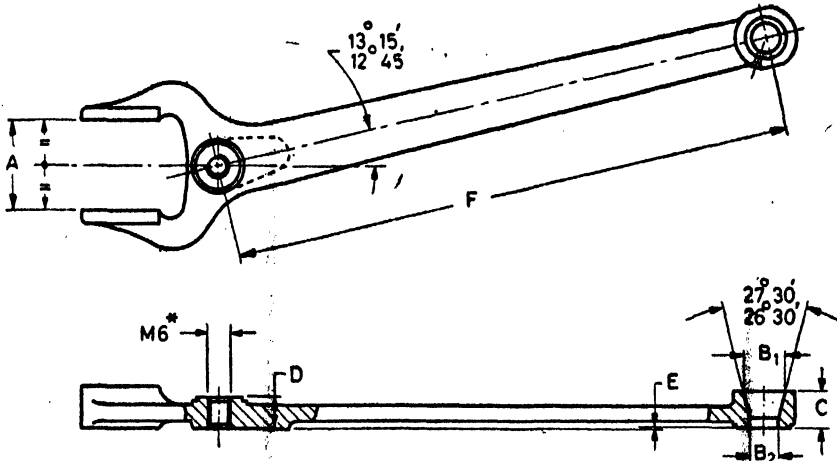
7.3 The feed forks shall be dull nickel plated or chemically coloured or given any other suitable surface treatment.

*Recommendations for machining deviations for dimensions without specified tolerances.

TABLE 3 DIMENSIONS FOR FEED FORKS, TYPE B

(Clause 5.1)

All dimensions in millimetres.



	A	B ₁	B ₂	C	D	E	F
Max	23.492	10.795	7.620	9.423	8.00	0.508	148.463
Min	23.479	10.541	7.493	9.169	7.75	0.254	148.361

*9/32" BSF threads may also be used till the complete change-over to metric system is effective.

7.4 The feed forks shall be free from defects, such as cracks, flaw, burrs, blow-holes, rust and inferior surface treatment.

8. MARKING

8.1 The feed forks shall be marked with the manufacturer's name or trade-mark.

8.1.1 The feed forks may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act, and the Rules and Regulations made thereunder. Presence of this mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard, under a well-defined system of inspection, testing and quality control during production. This system, which is devised and supervised by ISI and operated by the producer, has the further safeguard that the products as actually marketed are continuously checked by ISI for conformity to the standard. Details of conditions, under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

9. PACKING

9.1 Feed forks shall be given any suitable anti-rust coating or wrapped in vapour phase inhibitor paper (commonly known as VPI paper). The wrapped feed forks shall be securely packed in cardboard cartons in accordance with the best prevalent trade practice. Each carton shall bear the manufacturer's name or trade-mark, type and the description of the contents.

9.1.1 The cartons may also be marked with the ISI Certification Mark (*see Note under 8.1.1*).

10. SAMPLING

10.1 Unless otherwise agreed to between the supplier and the purchaser the sampling plan as given in Appendix A shall be followed. For further information reference may be made to IS : 2500 (Part I)-1963*.

APPENDIX A

(*Clause 10.1*)

SCALE OF SAMPLING AND CRITERIA FOR CONFORMITY

A-1. SCALE OF SAMPLING

A-1.1 Lot — In any consignment, all the feed forks of the same type and manufactured from the same material under essentially similar conditions of manufacture shall be grouped together to constitute a lot.

A-1.2 For ascertaining the conformity of the lot to the requirements of the specification, tests shall be carried out for each lot separately. The number of feed forks to be selected at random for this purpose shall be in accordance with col 1 and 2 of Table 4.

A-1.3 If the feed forks are packed individually, in order to ensure the randomness of selection, random number tables shall be used. In case such tables are not available the following procedure may be adopted:

Starting from any feed fork in the lot, count them in one order as 1, 2, 3, ..., up to r and so on, where r is the integral part of N/n (N being the lot size and n the sample size). Each feed fork thus counted shall be selected to constitute the sample.

*Sampling inspection tables: Part I Inspection by attributes and by count of defects.

TABLE 4 SCALE OF SAMPLING AND PERMISSIBLE NUMBER OF DEFECTIVES

(Clauses A-1.2, A-1.4, A-2.1 and A-2.2)

NO. OF FEED FORKS IN THE LOT	FOR DIMENSIONS, TOLERANCES AND WORKMANSHIP AND FINISH		SAMPLE SIZE FOR HARDNESS
	Sample Size	Permissible No. of Defectives*	
<i>N</i>	<i>n</i>		
(1)	(2)	(3)	(4)
Up to 15	5	0	2
16 „ 40	8	0	3
41 „ 110	13	0	3
111 „ 300	20	1	5
301 „ 500	32	1	6
501 „ 800	50	2	8
801 „ 1300	80	3	10
1301 and above	125	5	15

*This ensures that lots containing only one and a half percent or less defectives will be accepted most of the time.

A-1.4 If the feed forks are packed in different cartons, a suitable number of cartons (not less than 20 percent of the total in the lot subject to a minimum of 2) shall be chosen at random. From each of the cartons so chosen, an approximately equal number of feed forks shall be picked up from its different parts so as to obtain the required number of feed forks specified in col 2 of Table 4.

A-2. NUMBER OF TESTS AND CRITERIA FOR CONFORMITY

A-2.1 The feed forks selected according to A-1.2 and A-1.3 or A-1.4 shall be examined for dimensions (*see 5*), tolerances (*see 6*) and workmanship and finish (*see 7*). If the number of feed forks failing to meet one or more of the requirements mentioned above is less than or equal to the permissible number of defectives given in col 3 of Table 4, the lot shall be declared as conforming to the requirements of these characteristics.

A-2.2 In the case of those lots which have been found satisfactory according to A-2.1, number of feed forks equal to the sample size indicated in col 4 of Table 4, shall be subjected to hardness test (*see 4*). Any feed fork failing to meet the requirement for hardness shall be considered to be defective.

A-2.2.1 If no defectives are found among the feed forks subjected to the hardness test (*see A-2.2*), the lot shall be declared as conforming to the requirements of the specification, otherwise not.

INDIAN STANDARDS INSTITUTION

The Indian Standards Institution (ISI), which started functioning in 1947, is the national standards organization for India. Its principal object is to prepare standards on national and international basis and promote their general adoption.

The overall control of ISI, which is run and financed jointly as a non-profit making body by the Government and private enterprise, is exercised by the General Council, composed of representatives of Central and State Governments; leading trade, scientific and technological organizations; and subscribing members. The Union Minister of Industry is the ex-officio President of ISI.

The present technical activity of ISI is carried out through 8 Division Councils for Agricultural and Food Products; Chemical; Civil Engineering; Consumer Products; Electrotechnical; Mechanical Engineering; Structural and Metals; and Textile. All technical work relating to the formulation and revision of standards is done by committees appointed by and under the direction of their respective Division Councils. These committees consist of experts drawn from manufacturing units, technical institutions, purchase organizations and other concerned bodies.

To make available benefits of Indian Standards to the common man, ISI has introduced its Certification Marks Scheme under the *Indian Standards Institution (Certification Marks) Act, 1952*, as amended by the *Amendment Act, 1961*. According to this Act, quality goods conforming to Indian Standards can carry the ISI Certification Mark. This Mark is a third-party guarantee of quality of marked goods. Licences to use the ISI Certification Mark are granted to manufacturers using reliable methods of quality control subject to overall inspection by ISI.

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